DOCUMENT RESUME

ED 469 889 JC 020 722

AUTHOR	Diakun, Denyce; Phillips, Rodger
TITLE	Can We Get National Labour Market Information into the Classroom Faster? The Information Technology Professional Program. An Association of Canadian Community Colleges Sponsored Sectoral Case Study.
INSTITUTION	Software Human Resource Council, Ottawa (Ontario).; Champlain Regional Coll. (Quebec).
SPONS AGENCY	Association of Canadian Community Colleges.; Human Resources Development Canada, Ottawa (Ontario).
PUB DATE	2001-02-00
NOTE	13p.; Prepared for the ACCC/TASC/CAETO Colleges/Institutes and Sector Councils Symposium (Ottawa, Ontario, Canada, February 22-23, 2001).
AVAILABLE FROM	For full text: http://www.accc.ca/ftp/pubs/studies/Software.pdf.
PUB TYPE	Reports - Descriptive (141) -- Speeches/Meeting Papers (150)
EDRS PRICE	EDRS Price MF01/PC01 Plus Postage.
DESCRIPTORS	Community Colleges; Computer Software; Educational Technology; Foreign Countries; *Information Technology; *Job Training; *Labor Force Development; Partnerships in Education; *Technical Education; Technical Occupations; Technology; Technology Integration; Two Year Colleges
IDENTIFIERS	*Canada

ABSTRACT

The Software Human Resource Council (SHRC) is a nonprofit sectoral council that speaks for software professionals throughout the Canadian economy. The SHRC's mission is to increase the number of Information Technology (IT) workers in Canada. This paper gives a brief overview of the evolution of SHRC's Information Technology Professional Program (ITPP), a fast-track comprehensive one year program. ITPP is a model of collaboration between educational institutions, the government, industry, and the SHRC. ITPP was developed in response to the tremendous need for IT workers in Canada. The SHRC and the Human Resource Development Commission set out together to address this human resource issue on a national basis. The goals of the program are: (1) to increase the number of IT workers in Canada; (2) to re-skill qualified people who wish to change careers and take advantage of the opportunities in IT; and (3) to ensure that Canada remains competitive in the global marketplace. It was determined that the most effective means of achieving this agenda was to form partnerships among leaders in education, training, government, and the industries. This paper addresses the lessons learned and the benefits of partnerships, and also delineates future challenges for the program. (NB)

Reproductions supplied by EDRS are the best that can be made
from the original document.

AN ASSOCIATION OF CANADIAN COMMUNITY COLLEGES
SPONSORED SECTORAL CASE STUDY

ED 469 889

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☑ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY
J. Barbeau
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
1

CAN WE GET NATIONAL LABOUR MARKET INFORMATION INTO THE CLASSROOM FASTER?

The Information Technology Professional Program

Prepared for the ACCC/TASC/CAETO Colleges/Institutes and Sector Councils Symposium
February 22-23, 2001
Ottawa, Ontario

By **The Software Human Resource Council and Champlain Regional College**
Denyce Diakun, Software Human Resource Council
Rodger Phillips, Champlain Regional College

Funded by Human Resources Development Canada

220202

BEST COPY AVAILABLE

Introduction

Five years ago, a group of very innovative individuals met to discuss the information technology human resource issue in Canada. The Software Human Resource Council, a sectoral council with the mission of increasing the number of IT workers in Canada hosted this discussion. Universities, colleges, private trainers, government and industry were represented at this meeting. Through joy and pain, laughter and tears this group worked tirelessly to plan the formation of an information technology program that was specifically designed for graduates of universities and colleges of non-IT programs. They strived to design a national certification program that would be endorsed by the Software Human Resource Council and delivered by colleges, universities and private trainers across the country. The program is known as the Information Technology Professional Program, a fast track comprehensive one-year program.

The intent of this paper is to give a brief overview of the evolution of this program, the challenges, the achievements and the future possibilities. It will begin with a discussion of the role of the Software Human Resource Council, its mandate as well as identified areas of focus. The current human resource situation in the field of Information Technology (IT) will be discussed as well as areas of expected growth in this sector. The importance of understanding demographics, workforce composition, human resource development and their interrelationship to Canada=s ability to remain competitive in the global market place will be presented. An overview of the Information Technology Professional Program and the collaboration required on the part of all partners will be explored.

It will pose questions for the reader to ponder thereby stimulating creative ideas and innovative strategies for addressing the human resource issue in IT. It will summarize by discussing the challenges and the opportunities for continued collaboration and partnership.

The Role of the Software Human Resource Council

The Software Human Resource Council (SHRC) is a nonprofit sectoral council that speaks for software professionals throughout the Canadian economy. SHRC is a catalyst for change, pushing for innovations that will provide labour market intelligence, life-long career development and quality education and training for Canadians active in software fields. It is a not-for-profit, self-sufficient organization. Its projects and initiatives are financed by industry, government, education institutions and individual partners. The council is managed by a president who reports to a board of directors made up of members from corporate industry, small business, government and education, brought together by a desire to identify and address human resource

concerns they have in common. All partners work hard at ensuring that the available funds are applied to industry goals to achieve maximum benefit for the sector.
The council and its partners are working to maximize the potential of Canadian IT professionals. Together they identify issues, develop and implement projects in three major areas related to human resources:

1. Labour Market Intelligence

Y *Monitors the health of the Canadian software industry by capturing current labour market information, fostering dialogue between industry and government and anticipating trends.*

Projects

Inventory of labour market information in Information Technology was a project carried out during the year 2000. The council initiated it in partnership with HRDC. The objectives included identifying and documenting available sources of labour market information pertaining to IT and then critically assessing the methodology used to gather the data, identifying the most appropriate pieces of information and identifying information gaps particularly with respect to specific occupations in the IT sector.
Personnel systems B Income Gap results between Canada and the US, an analysis of disposable income in key high tech centers in Canada and the United States. Personnel Systems BCanada-US Salary Comparisons for the Information Technology (IT) sector. Industry Canada BStatistical information on Canada=s information and Communications Technologies Sector B1997, Significant Achievements: New SECTOR definition (Published Nov.1999). IT Labor Market Report addressing Human resource issues in the Information Technology sector.
Personnel Systems BSalary increases for Informatics Occupational Skills Streams, an update to the 1999 study undertaken to determine the salary increases in Software/IT jobs over a two-year period. (1997-1999).

2. Skills

Y *To develop standardized skill definitions and a common terminology base for describing software duties in the current Canadian Software industry.*

For Canada to build a highly skilled workforce that can master both present and future challenges, there is need for a determination of the skills required, who has the key skills and how are the skills being acquired, evaluated and upgraded. The Occupational Skills Profile (OSPM) is a tool developed by the Software Human Resource Council to address the urgent need for standardized skill definitions.

3. Supply

Y *To increase the supply of highly skilled workers in Information Technology by focusing on career education and career development*

SHRC foresees an increasing demand in Canada for a greater number of skilled IT professionals in a wider range of occupational clusters. John Reid, President, CATAAlliance states AIntellectual capital is the key to global success. Canada cannot succeed and grow without educating its people.@

Education Projects

These projects are designed to generate an interest in the field of information technology, dispel negative stereotyping and create an awareness of the vast opportunities in this sector.

DiscoverIT.org, a Web site providing IT career information for high school students, educators and parents. Teacher and Presenter guides for IT career awareness activities.

Career Development Projects

SHRC has initiated a variety of successful career development programs to partner with organizations in training and developing highly skilled IT employees.

Youth Internship Program Bplaces recent IT graduates with small to medium sized organizations for work terms. Facilitated Process of Temporary Employment B assists in obtaining authorization for Information Technology Professionals from abroad to gain employment in IT.

The Education Program for Software Professionals offered by the University of Waterloo offers a mechanism for providing software professionals a solid grounding in IT concepts, preparing them to adapt to new developments in the industry.

The Information Technology Professional Program B a postgraduate program that provides a solid knowledge of the integration of business and Information Technology. The council has certified over 1400 graduates from this program on a national basis.

The scope of these programs is expanding to include a post secondary IT training database, a high school apprenticeship and a literacy and life-long learning component.

SHRC=s success in pursuing a wide range of human resource initiatives in the IT field is enhanced by calling on the expertise, advice, networking and financial support of its stakeholder partners from industry, government and the education sector.

The Current Human Resource Situation

If you pay attention to the media today, the forecast for IT careers is really quite dismal. Is it dismal or are people losing their confidence in the new technologies?

According to Jim Carroll=s commentary in HTC magazine, Feb./01 edition, AWhile the media seems to be reporting with much enthusiasm on the sorry state of e-biz affairs, the reality is that the world of Hi Tech moves along, new technologies are invented, code is developed, businesses are built and applications are implemented.@ He further reports that the information the media is forwarding is probably not reality.
Reality is that by the year 2006, half of all jobs anywhere in North America, are going to involve computers, or the Internet, or some aspect of Information Technology. It is estimated by some sources that the highest demand will be for computer programmers, software engineers, technical support specialists, database administrators and network specialists. The bottom line is that new technologies are driving IT into every area of commercial and domestic life.

It is becoming quite evident that IT careers are evolving to another level. Technical people must be able to respond to rapid technological change and understand the impact of those changes on the business. Dr. Jamie Kaminski, senior e-commerce analyst and technical briefings manager at Xephon an international technical research organization states, ACompanies need to prepare themselves. This means analyzing business processes, simplifying where necessary and devoting resources to creating internal departments capable of monitoring and quickly responding to technological change.@ The need for highly specialized technical staff is always going to be present. The demand for adaptable people who can align IT capabilities with business strategy is going to greatly increase. AA firm=s IQ is determined by the degree to which its IT infrastructure connects, shares and structures information. Isolated applications and data, no matter how impressive can produce idiot savants but not a highly functional corporate behaviour.@ Steve H. Haeckel and Rechard L. Nolan, AManaging by Wire: Using IT to Transform a Business.@

A study released by SHRC last fall further supports the need for more IT workers in Canada. The study established that there is a strong correlation between rising salaries and the shortage of certain skill sets. Salary increases in the range of 8-19% have been awarded to the most in-demand occupations in IT. The study is a follow up to an earlier report that tracks IT salaries since 1997. All indicators are that the turnover is high and in order to stay competitive a company has to stay on top of salaries. Janet Schellenberger, a senior partner at Personnel Systems identified that employers report a 5-6 % vacancy rate for certain jobs. Employers are recognizing the need to implement strategies to recruit and keep employees in positions of demand. The competition for qualified individuals is strong.

Human Resource Development

The continuing tight labor market for IT professionals is driving demand for employee training, according to Computerworld's
Annual survey of IT spending plans. Forty-six percent of the organizations surveyed will increase their budgets for IT training, the spending category showing the greatest percentage gain. By contrast, 37% will spend more for recruitment and just 15% will boost budgets for consultants and contract labor.

The META Group's Worldwide IT Trends & Benchmark report for 2001 shows that turnover and compensation rates continue to rise. In the U.S., 10.2% of positions turned over, up from 8% the prior year. Compensation for U.S. IT workers increased by an average of 6.6%. The need to retain workers may explain the increase in average number of days spent training IT workers from 7.25 in 1999 to 8.25 in 2000. Spending for consultants and contractors as a percentage of the total IT budget declined in 2000.

Meanwhile, a study of all corporate training from the American Society for Training and Development revealed an 11% increase in training expenditures per employee for U.S. companies. Companies spend nearly twice as much on wages and salaries for training staff than on payments to outside companies. Instructor-led classroom training accounts for 79% of delivered training, while computer-based training and e-learning totaled less than 10% combined. However, respondents expected those percentages to change in the future, with learning technologies expected to account for 17% of training time in 2001.

Information Technology Professional Program
YAs a model of collaboration between educational institutions, the government, industry and the Software Human Resource Council

The Software Human Resource Council and the Human Resource
Development Commission identified a tremendous need for more
information technology workers in Canada. As we headed towards a global economy, Canada was running short in meeting the industrys need for qualified workers. In order for Canada to be a world leader this human resource issue had to be addressed on a national basis. This concern was acknowledged five years ago and the two parties set about to address it.

It became evident very quickly that the most effective means of achieving this agenda was to bring together the leaders in education, training and the industries. Government quickly realized that these partnerships provided significant benefits to them in meeting their objectives. The re-skilling of people from fields with limited employment opportunities into an area of demand seemed like a logical solution to the IT labour shortage. It also carried the benefit of increasing awareness and knowledge of IT in fields where there had been little acceptance.

The sharing of experiences, leading edge information and best practices in the area of IT among the partners could only benefit the sector. It was the council=s view that each party brought uniqueness and strengths to the table. The universities had the reputation of providing global knowledge, the colleges were the experts in applied training and the private trainers were the experts in responding to industry needs within a very short time frame.
Industry and government representation was essential for a reality check on what was needed and what could be reasonably achieved.

All parties came to the table with a vision and an idea of how their organization could rise to the challenge of meeting the shortage of Information Technology workers. Obviously all parties saw some opportunity for government funding at a time when there were many restraints. Whatever their motivation, the group came to the conclusion that they could work collaboratively to design a national program that could be delivered throughout the country. The program would be a standardized program offering a mix of vendor certifications, professional skills and business skills, the combination of which would warrant a national certification presented and endorsed by the Software Human Resource Council.

They struggled with positioning the various members, politicking and all of the wonderful challenges that confront a group that could be at opposite ends of the spectrum. In the end they managed to design a very unique program with an innovative teaching methodology that has been copied and replicated in several institutions. Government and industry were able to work with educators in designing a program that specifically met their needs.

It was determined that the delivery agents would be colleges, universities and private training institutions across Canada. These organizations would manage the staffing, recruitment of students and all aspects of delivering the program and SHRC would manage the curriculum and national marketing.

The program was created to meet the following objectives:

- $ To increase the number of Information Technology workers in Canada
- $ To re-skill qualified people who wish to change careers and take advantage of the opportunities in IT
- $ To ensure that Canada remains competitive in the global marketplace

The development of the initial curriculum was designed by the institutions involved, however the revisions have been and continue to be carried out by industry experts in consultation with the educational institutions and SHRC. All curriculum planning is done by the front line instructors at the sites, representatives from their advisories and the council. The council is able to provide labour market information critical to the implementation and design of the curriculum.

The program produced the following:

- $ The joint development of a series of post graduate courses including technical,

business, and professional courses

- $ The development of AMillennium Corporation@ a business simulation that integrates academic learning and experiences
- $ The determination of standards that address trainer qualifications, instructional methods and techniques, evaluation and assessment of performance
- $ The development of projects that include a rubric identifying skill competencies and levels of performance
- $ The development of quality assurance standards

Quality Assurance Objectives:

To provide accountability for complying with organizational goals; quality instruction to students, student success and competence in meeting curriculum objectives, customer satisfaction at all levels:

- $ To identify and determine strategies that enhance student performance
- $ To manage the quality of the product
- $ To provide guidance and support at all levels of operation through identification, monitoring and review of quality components for improvement and success

Partnerships

The creation of partnerships on a national basis created a number of challenges throughout the design and implementation of the program.

There were limited linkages among colleges particularily on a national basis. There were limited linkages among universities. There was little or no linkages among colleges and universities other than the occasional articulation agreement. There was no linkage between private trainers and post-secondary institutions . Many institutions were facing fiscal restraints and were competing with other trainers for students. There were limited linkages among the educational institutions and industries in their catchment areas

Each institution responded to industry needs at a very different pace. Industry was frustrated with the lack of immediacy to their training requirements.

Educational institutions were struggling to meet equipment requirements and human resource requirements. Each institutions view of education versus training varied

The opportunity to form relationships with vendors was new to most parties

In spite of all the initial challenges, the group was able to set out a plan for design and implementation of a very unique and successful program.

A specific plan for the development of curriculum was established .

- Strategies to obtain visibility and recognition were developed .
- Start up funding was provided by HRDC for the initial curriculum development.
- Operational manuals were designed with clearly defined standards and expectations
- An advisory board was developed
- Delivery sites were identified
- Relationships with vendors were defined and developed

Benefits of Partnerships

Benefits to SHRC

P Increased numbers of qualified employees in Information Technology
P Increased recognition and visibility
P Revenue generation enabling the implementation of additional projects
P Increased partnerships in industry
P A national certification in information technology
P A direct line to the educators for the provision of labour market information

P **Benefits to Colleges, Universities and Private Training Institutions**
P Revenue generation opportunity
P Enhanced vendor relationships
P National recognition and visibility
P Sharing of resources and expertise with other institutions
P Access to labour market information
P National certification of a program
P Opportunity for partnerships with national associations
P **Benefits to Industry**
P Greater access to quality training
P Consultation and input on curriculum design
P Greater access to qualified graduates
P Access to labour market information

P **Benefits to Government**
P More highly skilled workforce
P Increased mobility among professions
PP Meeting industry needs
P Direct input into Training program

P Lessons Learned

The evolution of the Information Technology program was fraught with challenges and opportunities. At times it seemed hopeless and yet in time an excitement took over the group. A number of valuable lessons were learned in this process.

Lesson #1

YIt is important to establish that everyone has something to contribute in the group.

The establishment of trust and respect takes time to develop and can only be developed with a repeated discussion on the purpose and goals of the endeavour. Ensuring that everyone has equal opportunity to express his or her views enhances this process. Commonality is a well-known requirement for any group dynamic. If all parties have a common opportunity to express their interest then the process moves much more quickly. When positioning takes place roadblocks are created. Positioning is basically adversarial. This kind of positioning promotes win/lose attitudes, damages relationships and ends up limiting options. It is important to satisfy the interests of all parties, and this can only be accomplished by open communication.

Lesson #2

YPartnerships are successful if there is a leader with a vision.

A constructive approach of focusing the energy of the parties on sincere collaborative efforts to obtain mutual gain avoids destructive conflict and builds rapport. The leader encourages the focus to be on an analysis of solutions rather than an analysis of problems. The partners are encouraged to act together to obtain the desired results.

Lesson #3

YEvery partner should have input into the product and be consulted on a regular basis.

A concentrated effort has to be made to ensure that everyone is aware of the changes and transitions in the process. Every partner should have equal input to the development of the product as well as input into all aspects of managing the program.

Lesson #4

YGovernment support is critical to the success of partnerships between education and industry.

Government needs to provide incentives and resources for the establishment of partnerships. Often the partners are competitors or adversaries, which can create challenges in the development of the partnerships. As the partners recognize the benefits of the partnerships the need for support can be reduced.

Lesson # 5

YSome partners identify a mutual interest but their needs may be different.

One of the most difficult situations the council experienced in this process was establishing a relationship between private trainers and educational institutions. Both came from a very different economic base and dealt with education and training in very different ways. The solution to this issue seems to have been the establishment of a different kind of role for the private trainer, that of a supplier. Partnerships are being established with private trainers for the provision of service, such as certified instructors and shared vendor licensing.

Lesson #6

YA partnership can only be successful if all parties are committed to the objective.

There is a need for commitment of time and human resources to this process in order for it to be successful. It also requires that each member keep their organization informed of all elements of the process.

Lesson #7

YExpect the unexpected.

Just when it seems like everything is running smoothly the unexpected happens. It is important to take it in stride, the beauty of partnerships is that you are never alone, everyone owns it.

Future Challenges

Although the partnerships have been very successful and productive there are still a number of challenges that need to be addressed to sustain the relationship and expand the program.

P The program has as its core vendor certifications. These certifications are subject to change on very short notice, if the vendor decides to change licensing requirements, etc. This can create havoc for the organization. The vendor certification is important in that it is widely recognized by industry and needs to be maintained. Therefore vendor relationships need to be strengthened, and enhanced.

P The program is still not part of the educational mainstream. The program is managed by the corporate training centers and/or continuing education departments. This relationship needs to be strengthened.

P Qualified instructors are still a challenge for the institutions. Contract trainers are often hired to teach the highly technical courses. Many of these trainers lack the understanding of the importance of pedagogy and varying learning styles in education. Options for addressing this issue need to be explored.

P Industry, educational institutions and the sectoral council need to work together to lobby

government to assist them in sustaining these partnerships.

- Sectoral councils and industry often put pressure on educational institutions to accelerate to higher levels of learning in shorter periods of time. Education must work with them to ensure that the education is not being jeopardized.

- The partners need to build on the sharing of resources across the country. With ITP there is one curriculum that is shared among the sites nationally. There would be tremendous cost savings to all if this process could be implemented in other areas of training as well.

- Industry needs to be more involved in education and training

- Education, the sector council and industry need to inform government of their needs in sustaining these partnerships .

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

NOTICE

Reproduction Basis

[X] This document is covered by a signed "Reproduction Release (Blanket)" form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.

[ ] This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").